REPORT

FROM

THE SECRETARY OF WAR,

Transmitting a Report and Estimate in reference to the Survey of the Eastern Shore Railroad, in answer to a resolution of the Senate of the 28th ultimo.

March 3, 1837.
Read, and ordered to be printed.

War Department,
March 2, 1837.

Sir: In answer to a resolution of the Senate of the 28th ultimo, I have the honor to transmit a report and accompanying documents from the Topographical bureau in reference to the "survey of the Eastern Shore railroad."

Very respectfully,
Your most obedient servant,
B. F. BUTLER,
Secretary of War ad interim.

Hon. William R. King,
President of the Senate pro tem.

Topographical Bureau,
Washington, March 2, 1837.

Sir: I have the honor of submitting the report and estimate in reference to the survey of the Eastern Shore railroad, called for by a resolution of the Senate of the 28th ultimo. The drawings cannot be copied in time for the present session of Congress, but should the report be ordered to be printed, the originals can be immediately placed in the hands of the engraver.

Very respectfully, sir,
Your obedient servant,
J. J. ABERT,
Lieutenant Colonel Topographical Engineers.

Hon. B. F. Butler,
Secretary of War ad interim.

REPORT OF THE COMMISSIONERS OF THE EASTERN SHORE RAILROAD TO THE GOVERNOR OF MARYLAND.

ANNAPOLIS, *January* 24, 1837.

His Excellency the Governor, and the honorable Council of Maryland:

The Commissioners appointed under resolution No. 15, of December session, 1835, to make a reconnoissance and survey, and to estimate the cost of the Eastern Shore railroad, beg leave to state, that, as early as practicable after the notification of their appointment, they organized their board and proceeded to the execution of the trust confided to their care.

The first important measure which seemed to engage their attention, was the selection of a competent Engineer, and failing in other inquiries, application was made to the President of the United States for this purpose, and Lieutenant Colonel Kearney, of the Topographical corps, (an officer of much experience and high distinction,) was detailed for this service. Immediately after the appointment of Colonel Kearney as Engineer-in-chief, the Commissioners proceeded to a general examination of the proposed route, and adjacent country, beginning, as directed by the resolution, at a point on the Wilmington and Susquehanna railroad, in Cecil county, and extending their view to the southern extremity of Somerset county, at the little Annamessix, connecting itself with the Tangier sound, on the Chesapeake bay, with a divergent line through Worcester county, to the State line of Virginia. Having thus examined the entire line of the contemplated road, the Engineer was directed to cause to be made the necessary survey and estimates. The length and number of these surveys have caused considerable delay, and it was not until the 10th of November last, that the Engineer was enabled to make even a partial report. That report was brought out preparatory to opening the books, and will be found to contain the length of the line and estimated cost of the road, and to which the Commissioners respectfully call the attention of the Executive.

A more detailed report being deemed necessary, for the better understanding of the great advantages which is believed the Eastern Shore will derive from the completion of this work, and the propriety of furnishing such other information as appeared indispensable to the construction of the road, the Engineer asked for further time to complete his report. The Commissioners have now the pleasure of submitting to the Executive, this additional report, in a more detailed form. Of the clear and satisfactory manner, and neatness of execution, in which this report is given, the undersigned forbear to speak, and would direct more particularly the attention of the Executive to this last report, believing that it will, in all respects, sustain the high reputation of that officer. The Commissioners would beg leave further to state, that some of the objects contemplated by said resolusion, and that of No. 108, and which are made the duty of the undersigned to execute, are yet in an unfinished state, and form but little part of the reports herein referred to. Believing that the principal line was of the greatest importance, their attention has been directed almost exclusively to it, and the intervening time has been found barely sufficient for this purpose : guide-lines, however, have been run from the divergent route through Worcester county, to the northern line of the State of Virginia, and from the village of Quantico, in Somerset county, to Salisbury, and may be found upon an examination of the plat accompanying the general reports. The

other lateral lines directed by resolution No. 108, have neither been examined or surveyed, for the want of the necessary time, but will receive the proper attention of the Commissioners at as early a date as practicable.

The undersigned believing it was not within their prescribed duties to make a selection of a route, have not determined upon one; they have confined themselves to furnishing such information as would enable the Board of Directors of this corporation (when organized) to decide upon such a line of construction as will combine the greatest possible advantages to the stockholders, and best subserve the public interest. The accounts of expenditure, of reconnoissance and survey, will be found appended to this report; and the compensation allowed to the engineers and other officers employed upon this work, it is believed, will be found such as characterize similar disbursements.

In making this report, the undersigned have felt some embarrassment: although a duty of high responsibility has been confided to them, they have looked in vain for some authority, indicated by legislative action as the proper one to which they should render an account of their proceedings; in the absence of such indication, they have deemed it most respectful to make their report to the Executive.

With much respect,

We have the honor to be,

Your obedient servants,

JAMES SEWALL,
EDWARD N. HAMILTON,
R. T. MASSEY,
THOS. S. CARTER,
THOS. EMORY.

The Maps and Profiles which accompany the report for its better illustration, will be left for a time for the inspection of the honorable Executive and Legislative branches of the Government, and being very valuable to the company, we respectfully request that they may be allowed to be withdrawn hereafter, by authority of the company, when it shall be organized, if found desirable to do so.

REPORT OF THE ENGINEER OF THE EASTERN SHORE RAILROAD.

ANNAPOLIS, *January* 24, 1837.

To the Commissioners appointed to survey the route of the Eastern Shore Railroad:

GENTLEMEN: My letter of the 10th of November informed you of the completion of the survey of the main stem of the road, and the probable cost of constructing it. I have now the honor to communicate more in detail the estimates of the work, and the maps, plans, and profiles, which have been made from the field-notes. There are two sheets of maps, and twenty-seven sheets of profiles.

Map No. 1 shows the position of the road, in connexion with the Chesapeake and Delaware bays, and with the peninsula, as far south as Cape Charles; its connexion with the railroads leading from Baltimore to Philadelphia, on the north; with that from Portsmouth to Weldon, on the Roanoke river, and with the projected road from Norfolk to Edenton, to the south, and its position relative to the line of travel from Halifax on the Roanoke river, through Petersburg, Richmond, Fredericksburg, Washington city, and Baltimore.

Map No. 2 is the horizontal projection of all the surveys made under the direction of the Commissioners. It exhibits the rivers, creeks, and mill-ponds, crossed by the experimental lines, the extent of wood and cleared land, and the proprietors' names, as far as they have been ascertained.

The sheets of profile numbered from 1 to 19 inclusive, are the vertical projections of the line used as the basis of the estimates. On them are given the heights of the ordinates of the curves at every three hundred feet on some parts of the route, and at every two hundred feet on others. The plane of comparison to which the ordinates are referred, is not the same for every part of the line, as may be seen by reference to the profiles—a circumstance that has not been overlooked in arranging the grades. On these sheets are likewise shown the extent of wood and cleared land, the width of water-courses, and the nature of the soil as it affects the question of the cost of excavation and embankment, and they show the inclination of the gradients and the quantities of excavation and embankment. Accompanying them is a table of grades.

The line now referred to begins at Somers's Cove on Little Annemessix, which enters Tangier sound immediately north of Watkins's Point, and nearly opposite to the mouth of the Potomac river. From Somers's Cove it was traced by the shortest route south of the great Annemessix river, by the head of tide-water of Black creek to Princess Anne on the Manokin river; and thence crossing Manokin river, Wicomico creek, and Wicomico river west of Handy's ferry, and some of the heads of Barron's creek, to Nanticoke river, 73 yards from the Delaware State line; thence was traced by a very direct course to Marshy Hope, branch of Nanticoke, which it crossed near the State boundary; thence by a direct line running along the eastern side of the mill-pond at Johnson's, to Choptank river, at

Greensboro'; thence to Chester river, at Millington, by a course lying a little to the eastward of Sudler's cross-roads; thence to the head of Sassafras river, by a course passing west of Massey's cross-roads; thence to the head of Bohemia river, west of the mill-pond; thence across the Chesapeake and Delaware canal, west of the Pivot bridge; and thence by the Feeder valley (so called) to the Wilmington and Susquehanna railroad, east of Red Hill.

Wicomico and Nanticoke rivers are broad and navigable streams, as is also the canal, at the points of passage.

The low grounds of Manokin river, Wicomico creek, Marshy Hope branch, and Chester river, are extensive where they are crossed by the line.

At most, if not all of the rivers north of Marshy Hope, the opposite banks are of very unequal height—abrupt on one side and sloping gradually from the general level of the country on the other; the abrupt banks of the more northern rivers are very high, and in some cases they are more elevated than the ground near them.

From Marshy Hope to Sassafras, the general profile of the ground is very slightly undulating; to the southward of Wicomico and Manokin, it is nearly level, and the formation of the road-bed will not be expensive. It is to the great extent of the bridging and embankment, as well as to the quantity of extra cutting necessary to reduce the grades to or nearly to the inclination of the angle of repose at the passage of the rivers, that may be attributed a very considerable portion of the cost of the work south of Sassafras.

North of Sassafras river the country is more rolling than that which lies south of it, and it is upon this part of the line, therefore, that, in proportion to its length, the quantity of excavation and embankment is greatest.

It was intended, in arranging the grades for the preliminary estimates, that none of them should exceed twenty feet to the mile; it has subsequently been found, on calculating the rate of inclination, that this rule has not been in every case rigidly observed. The alterations which it may be found hereafter necessary to make, in order to fulfil this condition on the more favorable ground over which the line may be made to pass, will not, I am persuaded, involve any labor beyond that which is given in the estimates, and it is even believed, with good reason, that the maximum grade may be reduced to seventeen or eighteen feet per mile, without much additional expense. In taking as the basis of the estimates of cost the line which I have been describing, it has not been my design to indicate a preference in its favor over the other routes which have been partially surveyed or examined, or which may have been suggested to the Commissioners. This line has been assumed on a rapid view of the profiles, because it appeared to present a fair view of the general character of the country through which the road will have hereafter to be definitively located, when all the questions connected with the subject will, I doubt not, be carefully considered and determined.

South of northwest branch, there is but the one line; thence to Bohemia river, the western line, (marked in red ink,) is the one I have been describing as the estimated route; north of Bohemia, it is the middle line until it has crossed the Chesapeake and Delaware canal; thence it is the Feeder valley line. Vide Map No. 2.

Sheets numbered 20 and 21 are the profiles of the continuation of the western line from Bohemia river to Elkton. Sheets 22 to 25 inclusive are the profiles of the eastern line south of Bohemia river. The eastern and the Feeder valley lines are identical from picket numbered 342, north of the canal, to the Wilmington and Susquehanna railroad. Vide sheet No. 19.*

In tracing these lines the provisions of the act to incorporate the Eastern Shore Railroad Company, and the spirit of the resolutions under which the Commissioners are acting, have been observed. Had it been discretionary to choose a route, none could have been selected (I speak of the general direction of the lines) more in harmony with the general interests of the Shore, nor, in my opinion, more consonant with the true interest of the counties apparently not most immediately benefited by it. Its directness relative to its terminii, gives it much of its efficiency as a competitor for the general travelling business of the Union, on which it has necessarily, for some years at least, to rely for its principal support, added to which the rapid intercourse which the southern parts of the Shore will by it be enabled to maintain directly and at all seasons of the year with a good harbor within its own borders, is, I conceive, an argument of no little consequence in its favor.

From the estimate, it appears that the road will cost, exclusive of motive power, and of the connecting line of steamboats, one million and twenty-four thousand three hundred and seventy-eight dollars and sixty-two cents, ($1,024,378 62) or about $8,663 a mile, a sum far below that of most of the artificial channels of communication in the United States. Equally favorable are the grades and curvatures, on which depend so much the cost of transportation and speed. Of the first of those a table is annexed, and, as already stated in my letter of the 10th of November, the latter need in no case exceed a radius of one mile.

With reference to the revenue, therefore, we know certainly that, of the three items which go to make up the amount of the annual charges upon the capital, two (the interest and the motive power) will be very small compared with many other works of the same kind; the first being but $66,322 72 per annum, and the latter (equal to the conveyance of 100 persons and 120 tons of goods daily, each way) not exceeding, upon a very liberal calculation, $52,639 per annum. Of the third item of expense, that of the repair and renewal of the perishable parts of the work, it is not so easy to speak with confidence, because the extensive introduction of wood into the construction of roads is of recent date, or at least, attention has been drawn to them so recently that they do not furnish the means of anticipating with certainty their duration. Using, however, the best information we have upon the subject, and adding the cost of preserving and repairing the embankments, drains, &c., we are warranted in assuming that the expenses under this head will not exceed $68,410 28 per annum, if it will equal that sum. Taking, therefore, the aggregate of all these, we have $187,472 for the total charge per annum, or $513 62 per day, and it appears that it will require only 21,900 passengers (30 per day in each direction) at four cents per mile, equal to $103,587, and 15,600 tons of goods per annum (25 per day each way) at four cents per mile, equal to $73,788, and the transportation of the mail at $120 per

* For an outline of these profiles, on a very reduced scale, the details omitted, see the annexed map No. 2.

mile per annum, 14,190, to yield a gross revenue of $191,565, leaving a surplus of revenue of $4,093, and a surplus of power equal to the conveyance of 70 passengers and 90 tons of goods per day in each direction. By charging five cents a mile for the conveyance of passengers, as authorized by the charter, the requisite number of passengers would be decreased one-fifth.

If the facts in our possession do not authorize us to state the amount of business the road will probably command, they are such at least as to lead to the confident expectation that it will be sufficient to yield a revenue equal to its maintenance, and in all likelihood, such as to nett large dividends.

The country immediately in contact, or having an intimate connexion with it, is now very deficient of good roads, and such as are in it are circuitous, and in the more sandy regions, and in wet weather, the resistance they oppose to the conveyance of burdens or even to the lightest vehicles, is so great as to impede very seriously the communication.

There are two stage routes upon the peninsula, on one of which there is a double line of stages, and they are near the bay shores, and lead directly towards Philadelphia. The communication with Baltimore by land is much less direct, and the chief part of the travelling to it is therefore by water, while the navigation is open.

The difficulty of reaching the peninsula by land is known to the Commissioners, as is also the difficulty of travelling through it at any season of the year. The fact that they find it convenient to meet in consultation at Baltimore upon matters especially affecting the interests of the Eastern Shore makes this quite manifest.

It is very easy, nevertheless, during the greater part of the year, to procure a passage by water to and from Baltimore or Philadelphia, and the price of the passage is reasonable. But the detention, and frequently the uncertainty to which this mode of conveyance subjects the traveller, are serious objections to it, as the value of his time and his expenses are often of much more moment to him.

From what has been here said, it appears highly probable that there is much less travelling, not only between the different parts of the peninsula, but between it and other places, than there would be if the conveyance were at all times certain and expeditious, for we find always that with the improvement of the modes of conveyance the number of travellers increase, and especially is this the case with railroad conveyance—of this the following are examples.

Without reverting to the increase which may have been consequent upon the opening of the Albany and Schenectady road, as the means of estimating it might not be very satisfactory to the minds of the Commissioners, it appears there travelled upon it, in the year 1834, one hundred and forty-three thousand four hundred and seventy persons, or twenty-seven thousand seven hundred and twenty-four more than in the year 1833. On the Baltimore and Ohio railroad the travel, in 1833, had already increased six-fold between Baltimore and Fredericktown.

In the year 1832, it was estimated by the engineer who made the preliminary survey that there might be expected daily upon the Winchester and Potomac railroad, twenty-four passengers. The road was opened early in the year 1836, and the average daily number was thirty-six for

the first months, and of these months only have we seen the returns. In March the number was 436, in July (1st to 15th) it had increased to 1548. In the year 1830, the Engineers who made the preliminary survey of the Baltimore and Washington railroad, after careful inquiry, were of opinion that the average daily travel between those cities then was one hundred. The first year the railroad was used, the travel upon it amonted to 75,416. or more than twice the former number. The Jamaica (Long Island) railroad, the failure of which was so confidently anticipated that it was said the grass would grow upon it in less than six months, did nevertheless convey seventy thousand passengers from May to December, 1836.

These examples of the effect of railroads are cited, because they are nearly all of them under the eye of the Commissioners, and because they relate to old and well-established routes, on which were already the most perfect modes of conveyance known before the improved locomotive engine came into use.

In Europe the effect of such improvements is also very great.

In England it is assumed that a probable estimate of the increase of travel on railroads would be two-fold on the average of the three preceding years, and in accordance with this we learn that before the Liverpool and Manchester railroad was made, the daily average between those cities was four hundred and fifty. In 1835, it had increased to thirteen hundred; and on the Dublin and Kingston railroad, the increase was nearly in the same proportion.

The beneficial influence of improved modes of conveyance upon productive industry also, is every where strikingly manifested. The history of the roads and canals and steamboats of the North, for example, is but a record of the prosperity of the community, a prosperity which has steadily kept pace with their extension.

The progress of such improvements, however, are often so slow that their action upon the condition of the people is not immediately apparent, but there are cases where immediate results stand in such marked contrast with the previous prostration that we cannot fail to observe it.

Of such examples there are none, perhaps, on a broad scale, more to our present purpose than those, the details of which are to be found in the reports of the committee of the Parliament of Great Britain on the influence of such improvements upon the condition of a part of her own population, and upon the productive power of capital. Referring, for the details of the testimony taken before that committee, to the reports for the year 1830, it may suffice here to condense them from a statement given in the Year-book for 1831.

The intercourse between Liverpool and Dublin, prior to the year 1824, was maintained by means of the ordinary sailing packets, and a week might be calculated as a fair average of the passage. At present, steam-packets are employed, and there is a capital of £671,000 invested in forty-two steamers, of 8,423 tons. The trip is now performed in fourteen hours. The results of this intercourse are most useful and most curious. The small inland trader now finds his way into the English market with what he has to sell, and he buys there what he wishes to retail in his own district. Steam navigation has given to Ireland the best and dearest market for her agricultural produce of all sorts; the best, because the cheapest market from whence to bring manufactured goods in return.

Traders now bring from the manufacturing districts of England the smallest quantity of any description of goods, and this is effected in two or three days. The effect is of the last importance with reference to the quantity of business done with the same capital: not one-fourth of the capital is now wanting to carry on the same extent of business, and this, it is believed by the most intelligent of the witnesses, will shortly lead to the erection of shops and establishments in the interior of Ireland, for the sale of a vast variety of articles that are not now to be had there. Some of the small dealers, who were formerly turning but a few hundred pounds a year, can now turn £10,000 in the same articles. Fifty tons weight of eggs, and ten tons weight of live and dead poultry, are sometimes shipped from Dublin in a single day. It appears that since 1824, of eggs alone, a branch of trade entirely new, there have been exported from Dublin only to the value of £273,000. There is no longer any scope for the employment of large capitals in extensive wholesale transactions; but an injury produced in this way is compensated, and much more than compensated, by the benefits conferred on the smaller capitalists, and on the community in general. Again, it was in testimony before the committee, that, on an experience of fifteen years, from 1802 to 1817, the system of public works which have been adopted in the highlands of Scotland has improved the habits and excited the industry of the people, and has advanced the country one hundred years, and that public works have been carried on in Ireland since the year 1823, which, although not conducted upon any permanent or well-digested system, have in all respects confirmed the recommendation of the select committees, and supported the example given in Scotland.

The preceding facts are strikingly applicable to the situation of the Eastern Shore, for although the existing means of communicating with a market enjoyed by the country near the bay, are very advantageous to it, their value is much lessened by the unavoidable suspension of trade at some seasons of the year, by the length and uncertainty of the voyage at all times, and by the risk of missing a favorable state of the market, in consequence of delay or of defective intelligence, or from inability to anticipate the more northern cultivators in their own markets. These are amongst their disadvantages as it respects the country lying on the bay shores, and in connexion with the industry of the interior they are still greater. Susceptible of a high state of agricultural improvement, and having an abundance of natural manures, the lands remote from navigation are neglected. With a climate as well as soil adapted to the abundant production of the finest fruits and vegetables, long before they can be brought to maturity near our great commercial cities, she produces little more of these than enough for the consumption of her own population; with fine grazing grounds and choice breeds, her sheep and cattle (with but few exceptions) reach their destination so reduced in number and condition as scarcely to justify the low prices which the farmer receives for them.

The productions of the dairy and of the farm-yard, of which immense quantities might be made, are limited chiefly to the domestic wants of the owner. Of the produce of the rivers, which abound in the finest shell and scale fish, the oyster alone, forms an article of export of much consequence. Of shiptimber, lumber, and fuel, large quantities are annually sent from the more southern counties, and of these the article of fuel more

especially. But the supplies heretofore derived from the shores are sensibly diminishing, and the expenses consequent upon their transportation on defective roads act equally injuriously on the consumer and seller.

The want of a general line of communication (the influence of which upon the co-operative power of a people is evident) is every where felt. Owing to the natural obstacles which its deeply-indented coast interposes, such a line cannot be profitably kept up by water, and there are no materials for turnpike roads; it must, therefore, be by rail-roads, for which the peninsula is peculiarly suited by its evenness of surface, and the abundance and excellence of its timber, the consequent cheapness of construction and the facility with which they may be extended.

The local business of such a road in conveying passengers and in transporting commodities of various kinds could not be very inconsiderable. That the freight upon foreign articles consumed by the 200,000 inhabitants of the peninsula alone, must constitute an item of some consequence, and and that it would be to the interest of the small capitalist to bring their goods by that conveyance, needs not, I should think, much argument, after what has already been said. The impulse too, which the road would give to social, political, and mercantile intercourse, among the inhabitants of many of the counties, now almost debarred of communication with each other, the facility of communicating with the great commercial cities with the least possible waste of time or money, the inducements which many places offer to wealthy citizens to retire with their families from the fatigues of busiuess for health or recreation, would greatly increase the amount of travel, and the completion of the contemplated lateral roads would add still more to this source of profit, as it would also to the transportation of commodities. The transportation also, of marls and of lime, which now lie waste, from the inability of the farmer to use them to any profit, would contribute to its revenue.

Of the heavier and more bulky commodities, besides those already mentioned, there are some which, during the winter months, would give employment to it. It is known, for example, that the price of fuel and of grain, (staple productions of the peninsula,) would, at the present season, pay very profitably from the interior.

With many, there exists a repugnance to railroads, arising, perhaps, from their apparent want of harmony with the settled habits of the community. The objections which we hear urged against their introduction, however, are not always very novel, they have frequently occurred to others. As such objections are often sincerely entertained, although often refuted, it may be proper, in order to satisfy the minds of those who might countenance the proposed work, if these were removed, to refer to some of the testimony which has been gathered from experience. It is with this view that part of the accompanying papers (Appendix A) are handed to the Commissioners. It may not be useless to the same end to state that of the railroads now in use, many are parallel with and not far removed from the course of navigation, and although some of them have been constructed mainly for the conveyance of passengers or for light freight, others are employed for more general purposes.

Although it is confidently anticipated the road will derive a considerable amount of revenue from the peninsula, it is not upon it that it will in fact rely for its maintenance and profits. The calculation of those who en-

tertain the opinion that it will be profitable, are based mainly upon the expectation that it will very largely participate in the general travel of the Union, and in the business which the railroads of the South will bring towards the Eastern cities.

Numerous roads have been projected to lead from the interior of all the Southern States towards the seaboard. Among them are the Danville and Evansham, a prolongation of the Portsmouth and Roanoke railroad. The Cape Fear and Yadkin, the Wilmington and Roanoke, Wilmington and Raleigh, and the Central railroads within the State of North Carolina. They have all of them been chartered, and some of them are under construction. In South Carolina, the Charleston and Hamburg railroad has been in use for some years, and conveys to that city much of the Southern travel, as well as large quantities of cotton, the latter of which formerly descended the Savannah river. The projected railroad from Charleston to Cincinnati meets with greater success than its friends could have anticipated, and they are enabled to commence it during the present year. Uniting the favor of the States of North and South Carolina, Tennessee, and Kentucky, through which it will pass, and of the State of Ohio, with which it will be connected, its progress will be very rapid, and its completion within a few years certain. The railroads in progress of construction or about to be undertaken in Georgia, are too numerous to find a place here: the central railroad will traverse the State from Savannah to the mountains, and it will be extended to the valley of the Tennessee, and thence very probably by the Tuscumbia and Decatur road, to Memphis on the Mississippi. From Columbus on the Chattahoochie to Pensacola, a railroad is now constructing; and thence to Blakely opposite to Mobile. A company has been chartered to construct a railroad from Mobile to New Orleans. From Columbus, roads have been projected, and some portions of them are in progress to traverse the Southern Atlantic States, from the Roanoke by Raleigh to Cheraw, and thence to Charleston, and from Augusta, Georgia, to the Chattahoochie. A road is also in contemplation from Charleston, passing through or near the commercial cities of North Carolina, on tide-water to Norfolk. A part of this line has been surveyed, and it is understood that a considerable portion of the stock has been taken with the intention of opening it from Norfolk to Edenton on Albemarle Sound. These roads, the completion of which, or the most essential of them, within the course of a few years, cannot reasonably be doubted, embracing as they will so great an extent of country, and spreading to the northwest and to the south, and in a state of activity at all seasons of the year, cannot fail to convey towards the seaboard, and to the great commercial ports, a vast amount of travel; for the existing modes of conveyance cannot compete with them in the essentials of speed, of safety, and of certainty. We have no statements to show the actual travel coming at present by the Roanoke route, much less can we anticipate the increase that will be consequent upon the opening of the Southern railroads. It may be proper, however, to say, in relation to the existing travel, that it has been ascertained more than a year ago, that 25,000 persons were carried by the line of stages which cross the Chattahoochie at Columbus, and that this number has already greatly increased. Of the number who cross the mountains of Upper Georgia, the Carolinas, and southwest Virginia, we have no knowledge; but during the suspension of the navigation of the

Western rivers, all the travellers from North Alabama, Tennessee, and Arkansas, and of eastern Kentucky, at least, must do so.* We have only to add that, at Norfolk, it has been estimated, from the books of the steam-packets, that 60,000 persons travel annually by water, between Savannah and Charleston, and the Northern cities. The proportion that will reach the Chesapeake bay when the railroads are finished, cannot of course be anticipated.

Upon arriving on the eastern slope of the mountains of Georgia and the Carolinas, the traveller will have the choice of several routes, viz: the lines of steamboats which ply from Savannah and Charleston to Norfolk, to Baltimore, to Philadelphia, and to New York, on the contemplated line of 150 miles, connecting Charleston with the Wilmington and Roanoke railroad, or by land, he may take the railroad heretofore spoken of, between Charleston and Norfolk, or the upper route to the Roanoke, where he will have joined the general course of land travel from upper Alabama and the State of Mississippi, and from Arkansas, Tennessee, and Kentucky. Hence he may pursue the route by Richmond, Washington, and Baltimore, or from Richmond by James river to Norfolk, or, taking the Portsmouth and Roanoke railroad, he may by that proceed to Norfolk, and by the bay and the Baltimore and Susquehanna railroad, or by Frenchtown and New Castle to Philadelphia, or, finally, from Norfolk by Tangier sound and the Eastern Shore railroad, Elkton, and Wilmington, to the same point.

Of the claims of a lengthened sea voyage to a preference, it is not necessary to say much, the general disinclination of landsmen to that mode of conveyance being well understood; the railroad will probably carry most of them to the Roanoke, or to Norfolk. That all travellers bound to the Eastern cities will, from Halifax or Weldon, pursue either of the routes I have mentioned, it would be altogether unreasonable to expect, but it is within the bounds of probability that a great majority of them will take the route by Norfolk and the Eastern Shore. It is yet more certain that, when the contemplated road from Charleston will be in operation, nearly all travellers coming from the South, and from the seaboard, will go upon it. Its directness and levelness must give it a decided superiority in point of time and cheapness, over any road that can reasonably be expected to be brought into competition with it, and its superior certainty at all seasons of the year will likewise recommend it. The road by Richmond and Fredericksburg, with which it will be more likely to be in competition, being longer by about 18 miles, reckoning from Roanoke river, or from their intersection, 27 miles, and part of it being much more steeply graded, cannot be travelled in the same time or as cheaply. On the Potomac river the travel is liable to be interrupted by ice, and in point of fact it is frequently interrupted, and the passage of the Susquehanna river, which the route crosses, is not at all times very practicable. This route too, must be subject to delay and detention, arising from want of harmony of arrangement amongst the many distinct companies and interests which are concerned in it. On parts of it, the companies are not, throughout the year,

* In the year 1830, the navigation of the Ohio river, by which so much of the Western travel ordinarily reaches the Eastern seaboard, was interrupted one hundred and sixty days, viz: 30 by ice, and 130 by low water. In 1831, one hundred and six days, 62 by ice, and 44 by low water; and in the year 1832, it was interrupted one hundred and twenty-one days, or 12 by ice, and 109 by low water. Hence may be inferred the fact that Western travellers are often compelled to abandon the water-courses.

dependent upon the general travel of the country for support. At seasons when the local business is of the most consequence to them, their arrangements must necessarily be adapted to its accommodation, although these should be to the prejudice of the traveller.

The railroad and steamboat route by Norfolk and Baltimore is equally incapable of maintaining a competition with that by the Eastern Shore, as it respects certainty, time, or speed, the distance by water and the total length of the route being greater than that of the Eastern Shore by 46 miles. The difference resulting from inferior speed upon part of it, (for the water-passage in the one case is 197 and the other 85 miles,) will increase it still more. To these reasons may be added the occasional suspension of navigation upon the upper parts of the bay during the winter months, and the uncertainty at all seasons of arriving at Baltimore in season.

The distance from Weldon by Norfolk and the Eastern Shore railroad to its union with the Baltimore and Wilmington railroad will be 280 miles, of which about 85 will be by water. The distance from Weldon to Norfolk is 77 miles. By placing the steamboats on the night line, the traveller may be allowed time for repose, so that he can resume his journey refreshed. There being but two companies upon the route between Roanoke and Elkton, (the steamboats are the property of the Eastern Shore company) and the accommodation of the travel between the North and South being the leading object of both of them, their co-operation may be more reasonably anticipated.

The road from Weldon to Norfolk is very straight, and the grades are low—in these particulars it will nearly equal the road on the opposite side of the bay. The speed therefore that can be maintained through the whole route will be of great consequence, not only to the traveller, but the merchant, in conveying intelligence; and to the General Government, in transporting the mail.

Situated, as the southwestern terminus of the line is, in a climate comparatively mild, the navigation of the waters near it is rarely closed, and never certainly so much obstructed by ice as to present serious difficulties in keeping it free. Tangier sound and the neighbouring rivers, always easy of access and safe, offer sufficient harbors and anchorages in near connexion with the road, and capable of being brought in direct contact with it. The advantage, therefore, which they present of occasional winter harbors for merchant-vessels, and the facilities which the road offers for their conveyance of cargoes, are, I conceive, of no inconsiderable importance, viewed either in relation to the interests of the Eastern Shore, or to those of the commercial cities of Baltimore, Philadelphia, and Wilmington.

With respect to the Southern trade of Philadelphia, it is believed that the road will be of material advantage to her, in opening a communication with a harbor accessible to her shipping at all times; for the difficulties which attend the navigation of the Delaware are very great, and before the erection of the breakwater near its entrance, the approach from sea at certain seasons of the year was exceedingly hazardous. Although that work now affords protection to a large amount of property, it would seem to be problematical whether it will continue to fulfil all the objects for which it was designed. [Appendix B and C.]

Vessels ascending the river are yet liable to delays, the effects of which upon the commerce of Philadelphia appear by the annual report of her Board of Trade for 1834–5, to be very serious. The board, in speaking of these delays, says: "Our ships arrive at the capes of Delaware in passages equally short with those of New York, but they have frequently to encounter a hundred miles of head winds, strong currents, and narrow channels. It should be recollected too, that in exact proportion to the length of these delays, be they what they may, our neighbors gain all the time, and too frequently much of the freight. It therefore behooves us to take such measures as shall secure to our ships and to our importers their proper share of foreign commerce, and give to our accumulating exports the readiest despatch." And a select joint committee of the Councils of the city, in the year 1835, states that large portions of her foreign imports are every winter shipped directly for New York, in consequence of the uncertainty of access to their city by the Delaware, and that their "powerful and most active rival has also derived other advantages in the sale of goods, from the apprehension entertained by Southwestern and Western merchants that their purchases would be detained by the closing of the ice." For these, amongst other reasons, the expectation of a connexion with the commerce of Philadelphia does not appear to be unfounded.

I have thus, gentlemen, endeavored to show not only the cost, but the probable business of your road. I have mentioned some of the links which will connect it with the general business of the Union, and the benefits which it promises to your shore; and, while doing so, the advantages in her commerce to Philadelphia have incidentally been brought into view. That this prosperous city is forced, by the difficulties of her navigation, to send a large portion of her most valuable trade to a rival port, is admitted. The effect of its transfer to a harbor in the Chesapeake bay would not, I should suppose, be otherwise than advantageous to Baltimore, its principal commercial city, near which Philadelphia would undoubtedly prefer to risk her commerce, rather than near the warehouses of New York.

It was not deemed necessary, in the estimate of the cost of maintaining the road, given at page 6, to include the maintenance of the steamboats. The business to sustain the road between Elkton and Tangier sound, will be enough for the steamboats thence to Norfolk, at the same rates.

It may also be noted that the interest of the investment is included in the charge for motive power on the road.

Very respectfully,
I am, gentlemen,
Your obedient servant,
JAMES KEARNEY.

*ESTIMATE of the cost of the Eastern Shore Railroad, 118 miles 377 yards long, from a point in the Wilmington and Susquehanna Railroad, near Elkton, to Tangier sound, and of a line of steamboats thence, 85 miles, to Portsmouth, in Virginia.**

FOR THE ROAD.

1st Division, 19 miles 1,474 yards.

97,238 cubic yards of excavation - -		$10,716 80	
Clearing and grubbing - - -		2,815 00	
Bridges and culverts - - -		14,292 00	
Superstructure of road - - -		76,798 65	
			104,622 45

2d Division, 9 miles 1,230 yards.

103,387 cubic yards of excavation and embankment - - - - -		19,474 00	
Grubbing and clearing - - -		2,154 00	
Bridges and culverts - - -		16,096 00	
Superstructure of road - - -		37,636 59	
			75,360 59

3d Division, 14 miles 330 yards.

79,374 cubic yards excavation and embankment		13,520 52	
Clearing and grubbing - - -		2,030 00	
Bridges and culverts - - -		11,054 00	
Superstructure - - - -		55,047 50	
			81,652 02

4th Division, 13 miles 1,220 yards.

86,074 cubic yards excavation and embankment		10,604 55	
Clearing and grubbing - - -		1,130 00	
Bridges and culverts - - -		300 00	
Superstructure - - - -		52,729 24	
			64,763 79

5th Division, 14 miles 680 yards.

85,792 cubic yards excavation and embankment		14,907 64	
Clearing and grubbing - - -		798 00	
Bridges and culverts - - -		14,880 00	
Superstructure - - - -		55,720 09	
			86,305 73

* The structure assumed as the basis of this estimate is described in the report of November 10, 1836.

6th Division, 18 *miles* 1,653 *yards.*

79,129 cubic yards excavation and embankment	20,367 16		
Clearing and grubbing - - -	1,060 00		
Bridges and culverts - - -	8,560 00		
Superstructure - - - -	73,534 70		
		103,521	86

7th Division, 9 *miles* 1,437 *yards.*

205,182 cubic yards excavation and embankment	60,722 13		
Clearing and grubbing - - -	530 00		
Bridges and culverts - - -	16,766 00		
Superstructure - - - -	38,065 88		
		116,084	01

8th Division, 17 *miles* 1,163 *yards.*

392,900 cubic yards embankment - -	113,579 47		
Clearing and grubbing - - -	880 00		
Bridges and culverts - - -	38,980 00		
Superstructure - - - -	68,523 85		
		221,963	32
Total cost of embankment, excavation, grubbing, bridges, and superstructure, as above - - - -		$854,273	77
Depots, water stations, wharves, and condemnation of land, &c. - - - - - -		91,500	00
		945,773	77
Contingencies not included in the preceding items -		78,604	85
Total cost of road and appurtenances - - -		1,024,378	62
For motive power on the road - - - -		81,000	00
For steamboats - - - - - -		150,000	00
Total estimate - - -		$1,255,378	62

NOVEMBER 10, 1836.

APPENDIX A.

*Remarks and Evidence relative to the influence of Railroads on Landed Estate, Agriculture, &c.**

[FROM THE EDINBURGH QUARTERLY REVIEW.]

The opposition which railway companies experience in obtaining the necessary legislation and sanction, proceeds, in the majority of cases in this country, from the landholders through whose lands the projected lines are to pass. Nevertheless, it is demonstrable that there exists no class of persons whose interests are more likely to be promoted by such improvements than those of the local proprietors.

Mr. Hardman Earle, a Liverpool merchant, was one of the most determined opponents of the Liverpool and Manchester Railroad. His family had, at the cost of above £12,000, built a house, and laid out pleasure grounds, through which the line of the railway passes; and their opposition was founded partly on the apprehended injury and inconvenience arising from this circumstance. Mr. Earle, therefore, was very properly summoned as a witness before this committee, and the following is a part of his testimony:

"Have you experienced any inconvenience since the railway was constructed?—No inconvenience whatever has been experienced.

"Are the grounds infested by the people in consequence of the passage of the locomotive engine?—No.

"Is there any thing offensive in it?—Nothing whatever.

"Is there any noise?—No; it is rather an object of interest to persons residing there.

"Are you able to say whether the inhabitants of other houses are annoyed?—I am enabled to say they do not consider them a nuisance.

"At the commencement of the undertaking, were you a determined opponent to the measure?—Yes; my mother was a petitioner against the bill, and I appeared as evidence against it.

"From all that you have since seen you would no longer oppose the construction of railroads?—Certainly not; from what I have seen, my opinion is entirely changed."

Another ground of objection urged by landlords is, the apprehended depreciation of the adjacent land. The facility of communication with the metropolis and populous towns is so obvious an advantage, that we cannot help expressing our astonishment that such an apprehension should for a

* The evidence here quoted was produced before the committee of the British House of Commons, on the London and Birmingham Railroad.

moment be entertained. As those who could entertain an objection so unfounded are little likely to be accessible to the reasoning by which it might be refuted, we shall here confine ourselves to facts, and show that in every case, without a single exception, which has come under inquiry, the value of land adjacent to a successful line of railway has been considerably increased.

Mr. Pease, M. P., a director of the Stockton and Darlington Railway, stated, in his evidence, that he had been for ten years a director of that company, during seven years of which the railroad had been in practical operation; that he had closely observed its effects on landed property through which it passed, or which was adjacent to it, and that he had been privy to all the negotiations which had taken place between the railroad company and the proprietors from whom they had made purchases.

"Do you know whether the advertisements for letting farms or selling estates contain any thing relating to the railroad?—It is invariably stated either that the railroad passes through the estate or near it; they consider it as an enhancement of the value of the property.

"Are you a landholder yourself in the neighborhood of the railroad?—I have one small estate which it intersects into two equal parts nearly. It passes through the enclosure in which the homestead stands.

"Have you been benefited by the railroad passing through it?—I have; the cuttings are available as drains; the rent of the property is increased one-fifth. I let the farm subject to its being given up, on the railway being made, and have since received one-fifth additional rent.

"Do you know any instance of the reduction of rent in consequence of a railroad passing through a farm?—I have made inquiries, but have not been able to meet with such an instance."

The Stockton and Darlington Railway was originally intended to be a single line; but after its formation the company found, from the extent of traffic upon it, that a double line would be necessary. Having originally purchased no more land than was necessary for the single line, they were obliged to treat with the same proprietors for an additional tract to widen the road, so as to receive the second line of railway.

Nothing can more conclusively decide the question of the effect of the railway on the value of land than this circumstance. Here was a portion of land, purchased before any railway had been constructed; and an equal quantity, in precisely the same place, was subsequently purchased from the same parties by the same company, after the formation of the single line of railway.

Mr. Pease was examined as to the terms on which the second portion of land was purchased.

"Have you paid on those (second) treaties an increased value upon the land beyond what you paid before the line was established?—Invariably.

"Can you say to what amount?—I should say that we have never objected to pay an advanced price of fifty per cent.

"Was this in consequence of the increase of value arising from the railroad?—We were quite aware of the increased value of it to the owner, and made no objection to the advance."

Mr. Thomas Lee, a surveyor and agent to several landed gentlemen in the neighborhood of the Liverpool and Manchester Railroad, was examined as to the effect of the railroad upon the value of land in that neighborhood.

"Can you tell the committee whether, in an agricultural point of view, property has been improved or deteriorated by the railroad passing through it?—It has been improved.

"Have the farmers been benefited by it?—They have.

"Have Colonel Lee and Mr. Trafford obtained higher rents in consequence of it?—They have.

"Have you taken land yourself at an increased rent?—At double the original rent."

Mr. Hardman Earle, before mentioned, was examined to the same point.

"Do you know any instance in which the value of land has been affected by the railway?—I think the Chat Moss was an instance of that kind. They bring manure from Manchester to Chat Moss; and wherever a station is formed, the value of the land is improved. You see advertisements recommending a site, because the railroad runs near or through it.

"Do you know of any instances by which land has been depreciated by it?—I think I can say positively there is not an instance on the Manchester line.

"Do you know of any persons quitting their dwelling-houses in consequence of it?—I do not know one. I should be glad to purchase land on the line, to build for myself."

We may here state that Chat Moss is an extensive district of bog and morass, over which the railroad was carried at incredible labor and expense. It was of course previously altogether unproductive. We now, however, see on each side of the road extensive systems of drains gradually carrying off the water, and leaving tracts of considerable fertility. There is no doubt that within a very short period the whole of this morass will be transformed into a fertile tract of arable land.

Another ground of objection is, the injury likely to be produced to turnpike trusts. Even if the truth of this objection be admitted, it is not one of sufficient force to warrant the sacrifice of public benefit. A turnpike trust is, or ought to be, held only for the public good; and if it should be affected by the establishment of a railroad, this would only prove that one was found more beneficial than the other.

But it is a curious fact that this apprehended injury has not (at least in every instance) ensued. The Stockton and Darlington Railway furnishes a remarkable example to the contrary.

Mr. Pease states in his evidence that the turnpike roads in the neighborhood of that railway have been improved since its construction.

"Has there been any advantage derived to the roads in the neighborhood?—I consider that they are all of them in a much better state of repair, and that their funds are improved; I do not know a single exception.

"Do you know the road from Stockton to Barnard Castle?—Perfectly well; I have been a commissioner. In that trust there are two roads running nearly parallel with the railroad, and a third intersected by it.

"Were the trustees of these roads petitioners against the bill?—All of them.

"On what grounds did they oppose it?—That the money borrowed on mortgage was hazarded by the railroad.

"Have their fears been realized?—No; the funds, in all cases, are improved.

"You state that of your own knowledge?—Yes; as an acting commissioner."

The advantages likely to arise to agricultural producers from the facilities of conveying their produce to market, as well as the reciprocal advantages derived by the consumers, were rendered apparent by the evidence of several farmers and graziers, and also of metropolitan butchers.

Mr. W. Meade Warner, an extensive farmer, residing in Oxfordshire, stated that he considered that if the railroad, now proposed to be carried from London to Birmingham, had been formed ten or fifteen years ago, it would have produced him an advantage of not less than fifty pounds a year. He considered that the whole system of farming grass land would undergo a change, owing to the new capabilities which would be conferred upon it by the speed, certainty, and cheapness, of the communication with the market. A different kind of produce, of a much better and more profitable quality, would be obtained from it.

"Are lambs sent to London from your neighborhood?—They are, principally on the road; but when too young to leave the mother for so many days as the road requires, they are sent by wagons. Not many, however, are sent by this way.

"Are you prevented from sending many lambs to market by the difficulties of the road?—We cannot send them so young as we would otherwise send them. It is of importance to send them early in the season, as the ewe would feed off earlier.

"If a railroad were established, would they be sent by you and the other farmers by that means?—No doubt of it.

"Do the same observations apply to calves as to lambs?—Exactly.

"Are the cattle much injured by being driven up?—Very much, incalculably.

"Supposing that even the cost was increased of sending them by the railroad, would it be of advantage to the farmer to have them conveyed by that means, nevertheless, instead of driving them in the ordinary way?—Certainly, it would be a great advantage. Sometimes they are driven till their feet are sore; and the effect of that is, they are sold on the road for what they can get. It is often the case that they drive many of them till they have not a foot to stand on.

"What price in your opinion would the farmer be willing to pay for the conveyance of his cattle to London by the railroad, instead of the present way?—If I paid double, I should still be a very great gainer. It is a very important thing in the saving of beasts and sheep, both as to the exposure and the nuisance they create on the public roads. Besides that, the cruelty and injury to the animals is beyond belief.

"Do I understand you rightly, that you would prefer to pay fourteen shillings for transmitting your cattle by railroad, to paying seven shillings for the ordinary means of conveyance?—To be sure I should."

Mr. Charles Whitworth, a very extensive farmer, was examined and strongly corroborated the testimony on the same points. He had seen cattle conveyed on the Manchester railroad, and stated that they came from the journey as fresh as if they were just off the field.

The injury sustained by cattle coming to the London market was further proved by Mr. John Sharp, an extensive butcher residing in Mary-le-bone. He stated that he has been forty years a butcher, and that he never

failed to observe more or less injury sustained by cattle driven from a distance to London; that their value was considerably lessened, owing to the inferior quality of the meat, arising from the animal being slaughtered in a diseased state. He stated further, that even steam-vessels, where they could be resorted to, did not altogether remove this objection. Cattle come from Scotland by steam-vessels, and they are found in London to be in an unnatural state: they "seem stupified, and in a state of suffering from fatigue." To convey live cattle from a great distance, not only speed but evenness of motion is indispensable. Now, these two requisites cannot be combined by any other means than the application of steam-engines upon a railroad.

In the produce of the dairy and the garden, it is not only by smoothness and ease of transport that a railroad would offer facilities. Articles of a perishable nature must be supplied to the consumer within a short period after they are taken from the soil. The speed of railroad conveyance being six or seven times that by cart or wagon, the consequence would be that such articles would be supplied to the metropolis from a circuit with a radius of six or seven times the length of that which now supplies them; and consequently the land which would become available for the metropolitan markets, would be from thirty-six to forty-nine times the present extent: supposing railroads to diverge in all directions from the metropolis, and to be furnished with their usual ramifications.

In a former article on this subject we attempted to show by general reasoning the immense benefits which would accrue, both to farmers and landlords, as well as to the inhabitants of towns, by carrying extensive lines of railroad through populous districts, connecting them with those places from which supplies of food and other necessaries might be obtained. We showed that the factitious value which tracts of land immediately surrounding the metropolis and large towns acquire from the proximity of the markets, would be moderated, and a portion of their advantages transferred to the more remote districts; thus equalizing the value of agricultural property, and rendering it in a great measure independent of local circumstances. We showed, further, that the profit of the farmer, and the rent of the landlord, would be benefited by the reduced cost of transport, and that such benefit would be likely shared by the consumer; in fact, that the advantages of centralization would be realized without incurring the inconvenience of crowding together masses of people within small spaces; and that the whole face of the country would be brought to the condition and made to share the opportunities of improvement which are afforded by a metropolis and by towns of the larger class.

At that time, however, we had no specific evidence to adduce in support of our reasonings, so as to reach those minds which can be only influenced by a direct appeal to facts.

The subsequent extension of railways has brought to light a body of evidence so extensive that our only difficulty lies in the selection of such parts of it as may not exceed our limits. The beneficial effects of the Liverpool and Manchester railway on the value of land in the district through which it passes, have forced conviction upon the minds of those who were most conspicuous opponents of that project.

Mr. J. Moss, a director of the Manchester railway, gave the following testimony:

"Is it contemplated to have a railroad between Birmingham and Liverpool ?—It is quite arranged.

"Have you made application to the owners of land for their consent? —As far as our half goes.

"Have you found owners on the line between Liverpool and Birmingham to consent to the railroad there, who nevertheless opposed the Liverpool and Manchester line?—Several; among others, Lords Derby and Sefton.

"Did Mr. Heywood, of Manchester, oppose the Manchester railroad ? —Yes.

"Did he afterwards complain of its not passing through his lands ? —He complained very much of it."

The opposition of Lords Derby and Sefton to the Manchester railway bill compelled the company to deviate from the line of road which they first proposed, and which Mr. Stephenson, their engineer, pronounced to be the best. That line must have passed through a part of the property of these noblemen, whose opposition would, at that time, have defeated the bill. The company were, therefore, compelled to select another line, which was not only much more expensive in the formation, but which has since been productive of consequences most injurious to the road and to the interests of the company and the public.

The line which the engineer was compelled to adopt imposed upon him the formidable enterprise of crossing Chat Moss; and involved the company in an enormous expense in forming a solid road over that extensive morass. This, however, was not the only or the most extensively injurious effect: it became necessary to carry the line of the road over an elevation, so that the moving power had to overcome a slope rising at the rate of one in ninety-six in both directions—extending through more than a mile and a half in each case. To draw a load up a slope of this degree of acclivity requires an impelling power amounting to nearly four times the power necessary to draw the same load on the level; the consequence is, that either auxiliary engines must be kept constantly at the foot of the slope, or else the impelling machine must be constructed with four times the power necessary on the level, and with a proportionate increase of strength and weight.

We may safely assert, that no circumstance connected with the Manchester railway has been a more fertile source of expense and inconvenience than this occurence. But if any thing be wanting to demonstrate the mischief of the proceeding out of which this has arisen, it is the fact detailed in the evidence of Mr. Moss, that a second line of railway has been in contemplation, connecting Liverpool with Manchester; that this second line is countenanced and encouraged by these very noblemen, Lords Derby and Sefton; that it is to pass through their grounds, and we presume to take the very course which was originally contemplated by the present railway company, and from which they were driven by opposition.

"Has there not been a scheme for another railroad ?—Yes.

"Is it to pass through Lords Derby and Sefton's lands ?—Yes; they both consented. They threw us back the first year by the opposition to our road, and we then lost such a line as we never could obtain again. Since this, they have both consented that the other line shall pass through their property."

Other proprietors, however, more speedily learned their error, and actually made interest to get the line through their property.

"Do you know Bold Hall ?—Very well, it is a fine house.

"Is it near Liverpool and Manchester ?—Yes ; the proprietor complained very much that we made a complete bend to avoid his property.

"Did he afterwards wish you to cut off the bend, and go nearer by a straight line ?—Yes ; and we agree to go much nearer to his house."

In the evidence of Mr. Moss, we find a striking instance of the preference given by the public to railroad conveyance.

"Do you know whether there are some places on the line from Liverpool to Manchester, where persons go down a considerable distance to come to the rail ?—Yes ; Southport is an example. This town is 38 miles from Manchester, and 25 miles from Liverpool. Persons going to Manchester prefer to come the 25 miles to Liverpool, and 30 along the railroad, making 55 miles, to going 38 miles by the direct road to Manchester.

"Do they do that with a saving of time and expense ?—They save both time and expense."

A large portion of the time of those farmers and graziers, at a distance from London, who are obliged to attend the London markets, is consumed in making the journey. Mr. Robert Attenborough, a farmer and grazier, residing at Braybrook, eighty miles from London, stated that his business obliged him to attend once a week at Smithfield market ; that it takes him three days and a night, travelling at night, to go up to London to do his business, and return ; and that a like inconvenience is sustained by the other farmers and graziers in his neighbourhood ; that besides the expenses on the way, the fare of the coach is £3 4s. and that the sacrifice of his business at home is the consequence of his journeys.

From the Petersburg Farmer.

[Extracted into that work from the Chronicle.]

RAILWAY TRANSPORTATION OF LIVE STOCK.

One of the causes of general agricultural depression has been the want to the farmer of the means of transporting his produce, with rapidity and certainty, to those districts where larger and better remunerating prices can be obtained than in his own immediate vicinity. It is well known that, though extensive purchases of fat cattle are made every year in Herefordshire and the neighboring counties, for the London market—many are deterred from entering into the trade by the expense, trouble, and difficulty, as well as certain loss, entailed in bringing beasts to London, the loss being always set down at ten per cent. some times it is even much more. The consequence is, that the spirit of enterprise is checked, and the farmer loses the advantages of competition in the purchase of his cattle, and is often obliged to put up with prices which do not repay his expenses. Wherever railways have been established, they have been the means of removing this drawback upon agriculture. If railways are allowed in some parts of the country, they must be established in all ; if not,

a monopoly would be enjoyed by the agriculturists in the railway districts: thus the farmers near the Birmingham railway will, until other trunks projected for grazing counties are completed, enjoy the privilege of sending their cattle to the London markets in a few hours, to the exclusion of the other farmers, from want of facility of communication.

In order, therefore, to meet the demands of the farmers of Herefordshire, and to enable them to forward their produce to the metropolis in twelve or thirteen hours, which is precisely the number of days at present required—a railway has been planned and surveyed, which will connect the town of Gloucester, near the centre, from which several important trunks radiate, with Herefordshire, passing through Newent, Dimock, and Ledbury, thus bringing railways from the metropolis into the very heart of this fertile and rich country.

From the American Railroad Journal.

The Grand Junction Railroad from Birmingham to Warrington will be a work presenting less difficulties, and attended with a more limited investment of capital. The country through which it passes is less intersected by ridges and other inequalities; although here also a considerable extent of cuttings and embankments must necessarily be made. As a commercial speculation, it is needless to say that it presents the fairest prospects of a successful issue; indeed, the formation of the Birmingham and London line rendered the Grand Junction line inevitable. Thus, the whole kingdom, from London, in a northwesterly direction, to Liverpool, will be traversed by this great artery of communication; producing an interchange of benefits, physical and moral, commercial, social, and political, the importance and amount of which it would be impossible to estimate or predict.

The formation of this great line of cheap and rapid communication has rendered the construction of similar means of intercourse in other directions inevitable; otherwise the benefits of the metropolitan market would be almost exclusively conferred upon those agricultural and manufacturing producers whose good fortune might place them in its neigborhood. In their own defence, therefore, landed proprietors and capitalists, in every part of the country, must exert themselves; for, whatever doubts they may have formerly entertained as to the expediency of constructing such means of communication with the metropolis, they can hardly any longer hesitate as to what they should now do; unless they desire to see themselves cut off from the benefits arising from the production of articles which cannot be transported on turnpike roads or canals, in competition with railroads. We find, accordingly, that various undertakings have already been set on foot, for the construction of extensive lines of communication, in other directions from the metropolis. An act of Parliament was passed during the last session, for the construction of a line connecting London with Southampton and Portsmouth, passing through Esher, Basingstoke, and Winchester. As this project was countenanced by the principal landed proprietors through whose property it will pass, the act passed the Legislature without difficulty or expense.

Another fact going to show the estimation in which railro ads are held by land-holders near them may be mentioned.

From the Baltimore American.

The donations of land, west of Genesee river, to the New York and Erie Railroad Company, are of such value as to ensure to the company six per cent. per annum on all sums called in before the year 1841, with the proviso that what remains unsold may be distributed ratably amongst the stockholders. Several capitalists have offered for these lands 400,000 dollars, but the company does not intend to accept their offer, preferring to have the benefit of the rise in its value.

APPENDIX B.

REPORTS CONCERNING THE NAVIGATION OF THE DELAWARE BAY.

Extracts from a report accompanying the report of the Chief Engineer to the Secretary of War, made in the year 1823.

The Delaware bay is not only obstructed by fixed ice, during a part of the winter, but it is without a harbor near its mouth, in which vessels can secure themselves, either against winds blowing from the northwest to the southeast, round by the north, or against floating ice. It is frequently the case that the navigation of the bay is impeded by the ice as early as the month of December, and it is often open for eight or ten days, and sometimes longer, between the twentieth of December and the fifteenth of January, yet it closes again, and remains shut until the twentieth of February, or even the first of March. For two months at least, therefore, between December and March, vessels bound up the bay will be uncertain as to their passage to the city; and, being without shelter when they arrive at the Capes, will be exposed to the greatest dangers, should they find the passage obstructed. As to the vessels departing from this port, it is true they can choose a favorable moment for descending the river; but should they be met by adverse winds at the Capes, they also will be exposed to be driven ashore by the winds, or destroyed by the ice.

From information received through the Chamber of Commerce, it appears that the tonnage exclusively belonging to and registered in the port of Philadelphia, in eighteen hundred and ten, when the population of the city and county amounted to one hundred and eleven thousand two hundred and ten, was one hundred and twenty-four thousand four hundred and thirty; and in eighteen hundred and twenty, when the population amounted to one hundred and thirty-seven thousand and ninety-seven, was seventy-eight thousand eight hundred and thirty-seven.

Now, if the tonnage had increased in the same ratio as the population, it would have been, in eighteen hundred and twenty, one hundred and fifty-three thousand three hundred and ninety-four, instead of seventy-eight

thousand eight hundred and thirty-seven; consequently the tonnage of the port of Philadelphia, in eighteen hundred and twenty, may be said to have been but about half of what it was in eighteen hundred and ten. Though this great diminution is to be ascribed to various causes, there is no doubt that the want of a good harbor, at the mouth of the bay, is one of very great influence: owing to this want, many vessels postpone their departure from foreign ports, thereby incurring very great expenses, or, arriving off the capes at the unpropitious season, are obliged to bear away for some neighboring port. As to those which run the risk of the passage up the bay, many are much damaged, and others entirely lost. In the winter of eighteen hundred and nine and ten, a large number of vessels, in attempting this passage, were either destroyed in the bay by ice, or wrecked upon the shore, or lost at sea while in pursuit of a harbor of safety. Since that period the captains have orders not to incur like risks; and the winter arrivals are comparatively few. The regular packet-ships which come upon the coast in winter are often obliged to bear away for New York, there to land their cargoes, the transportation of which, owing to the badness of the roads at that season, is both tedious and costly. Besides the embarrassment to commercial intercourse, the loss of time, and the increase of expenses, which are consequent upon the present state of things, the premium of insurance is greatly increased by the dangers to which vessels in the winter are exposed at the mouth of the Delaware. This premium is from half, to one and a half per centum, above the customary rate; and in cases which become desperate from the casualties to which vessels are exposed, in the attempt to enter the Delaware, insurance is either refused or an exorbitant premium demanded. As to the losses of vessels which have actually happened for want of a proper shelter, it is difficult, though they have unquestionably been numerous, to determine the number, or state the amount of property. They can only be ascertained by research amongst the journals of the period, and amongst the records of the several insurance offices, both in this city and elsewhere; to which research, the commission does not feel warranted to devote the time it would require; but this much appears to be certain, that the ship-owners in Philadelphia, in consequence of the trouble, risk, expense, and loss of the navigation, do not order one in ten of their vessels to this port in winter; and, also, that if there were suitable shelter, they would engage, with enterprise and confidence, in all the chances of commercial speculation.

Although it is difficult to specify the amount of the losses sustained; although the annual amount has been decreasing with the reduction of the tonnage, and the greater precaution on the part of the merchants, still, some idea may be formed of it from the circumstance, that a single East India or China ship is often worth half a million of dollars, that is to say, two or three times as much as would be the cost of a breakwater, near the Capes, to shelter a dozen vessels.

We have thus far examined the advantages to result from an artificial harbor in reference only to the commerce of the Delaware; but they will be found of scarcely less moment to the coasting navigation of the nation at large. The great number of shipwrecks upon the coast of Jersey and Delaware proves that the winter navigation of that coast is attended with imminent peril; and we may safely affirm that a project which shall place a secure harbor at the mouth of the Delaware, lying, as it will, about midway be-

tween the distant harbors of New York and the Chesapeake, and being always accessible with the winds which are most dangerous, will produce a result of incalculable value, whether we consider the saving of property or of human life.

Extract from a Memorial of the Chamber of Commerce of the city of Philadelphia to the Senate and House of Representatives of the United States, on the subject of the Delaware Breakwater.

From the Capes of Virginia to the entrance of the harbor of New York, there is not a place of refuge to which a vessel can resort for shelter, in moments of peril and danger. The intervening space, comprehending a line of nearly three hundred miles, lying along the very centre of the Union, and the most frequented of any part of our coast by vessels navigating from port to port of the United States, presents to the distressed and harassed navigator nothing to comfort or relieve him. He dare not approach the land, and if, by the power of causes beyond his control, he is driven too near, the shock which follows most commonly confounds his hopes, overwhelms his adventure, and, not unfrequently, consigns to one unhappy fate the vessel, the cargo, and the lives of all on board. The southernmost coast of New Jersey, particularly, has thus become the frequent scene of calamitous wreck and destruction.

APPENDIX C.

REPORT ON THE CONDITION OF THE DELAWARE BREAKWATER.

LEWES, DEL., *November* 10, 1834.

SIR: In compliance with the instruction of your letter of October 25th, we have made an examination of the Delaware breakwater, and now present the following report thereon:

It appears, by an inspection of the maps representing the state of the works at the close of operations of each year, that, since 1830, every year has presented new additions to a shoal near the west end of the breakwater, and that, within the last year, particularly, this shoal has greatly increased.

Before 1833 little had been done on the ice-breaker; since that period this work has been brought nearly to completion, and a shoal on either side of this mass has been observed to be simultaneously forming.

These are the principal facts bearing upon the question before us; and after a deliberate consideration of them, we unanimously concur in the following opinions, viz: That the next year's operation should be confined to giving to all the work already begun the ultimate dimensions, omitting any further extension of the work eastward, and waiting during the year, and if necessary, during a longer period, the further growth of the shoal.

That, in the mean time, very numerous and careful observations should be made to determine the precise amount of enlargement, both in lateral limits and in elevation of all the shoals.

That a system of observations should be steadily pursued, whereby the force and direction of the flood and ebb currents, at different times of tide and at different distances from the work, may be accurately given, and clearly represented on the map.

With the extension of the work above water, herein contemplated, the immediate advantage will be obtained of a considerable augmentation of sheltered space, the same extension will serve to indicate, in a more decided manner, the form and magnitude which the shoals may be expected ultimately to attain; it will bring nearer to a solution the important question as to the most proper width to be given to the eastern entrance to the harbor. And with the aid of the information obtained by the observations on the shoals and on the tides, an opinion less liable to error may be formed as to the exact cause of the shoals, the extent to which they may reach, and, if remedy or correction be possible, the mode and manner of remedy or correction.

Sooner than herein contemplated, we believe it would be premature to resolve on any other change than that indicated, of the original project, as we believe it would also be premature now to fix upon the matters of detail in the style or manner of the ultimate finish.

We have the honor to be,

Your most obedient servants,

TH. S. JESUP,
Major General and Quartermaster Gen.
JOS. G. TOTTEN,
Lieut. Col. of Engineers and Br. Col.
S. THAYER,
Brevet Lieutenant Colonel.

Hon. LEWIS CASS,
Secretary of War.